

Remarks

Claims 1-8 are pending in the application. Claims 1, 3, 5, 8 have been rejected under 35 U.S.C. § 102(e), and claims 4, 6 and 7 have been rejected under 35 U.S.C. § 103(a). In view of the following remarks, reconsideration and withdrawal of these grounds of rejection is requested.

Examiner Interview

The Applicant thanks Examiner Nguyen for the courtesy of the Interview conducted on February 15, 2005. During the Interview the Applicant's Representative (Darius C. Gambino) and the Examiner discussed independent claims 1 and 8 in view of the Pehlke reference (U.S. Pat. No. 6,738,432). The Examiner agreed that Pehlke did not disclose, teach or suggest a device or method for "converting" an amplitude signal into a binary value (claim 1), or "generating" a binary signal based on an amplitude component (claim 8). Accordingly, the present Amendment has been filed.

Drawings

The drawings are objected to under 37 C.F.R. 1.83(a) as failing to show features specified in the claims. In particular, the Examiner contends that the "rectangular to polar converter" of claim 2, and the "mixer" of claim 4 are not shown in the drawings. However, Figure 1 of the present application shows a rectangular to polar converter 120 (see also, specification, page 4, line 6). Claim 4 has been amended to recite a "modulator" as opposed to a "mixer," the modulator being shown in Figure 1 as element 130. Accordingly, reconsideration and withdrawal of this objection is respectfully requested.

Claim Rejections Under 35 U.S.C. § 112

Claims 2 and 4 stand rejected under 35 U.S.C. § 112, Second Paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. In particular, the Examiner contends that “it is not clear which” rectangular to polar converter (claim 2) or mixer (claim 4) is intended. Since only one “rectangular to polar converter” is recited in claim 2, the Applicant asserts that this claim is proper as stated. If the Examiner wishes to maintain the rejection of claim 2, the Applicant requests clarification of the ground of rejection. As noted above, claim 4 has been amended to recite a single “modulator” rather than a single “mixer,” and thus the Applicant believes this claim is also proper. Hence, reconsideration and withdrawal of this ground of rejection is respectfully requested.

Claim Rejections Under 35 U.S.C. § 102

Claims 1, 3, 5, 8 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Pehlke et al. (U.S. Pat. No. 6,738,432). For the reasons set forth below, reconsideration and withdrawal of this ground of rejection is respectfully requested.

The present invention comprises, in one exemplary embodiment, a signal transmission apparatus 100 including a base band signal generation and coding (“BBSGC”) portion 110, a rectangular to polar converter 120, a phase modulator 130, a variable gain amplifier 140, and a digital amplitude restoration circuit 200.

In operation, the BBSGC portion 110 converts an input analog wave I into digital format and provides any necessary coding (see, specification, Paragraph [0016]). The digitized (and possibly coded) wave is then converted into polar format by the rectangular to polar converter 120, resulting in amplitude (m) and phase (ϕ) components (see, specification, Paragraph [0017]). The amplitude portion (m) is then provided to the digital amplitude restoration circuit 200 which includes an amplitude mapping circuit 210. The amplitude mapping circuit 210 converts the amplitude portion (m) into a binary value (e.g., with bits $b_1 - b_n$). The binary value (or digital word "DW" as it is also referred to in the specification) is applied to a series of power amplifiers through a digital gain control circuit 220 to control the gain level of the power amplifiers (see, specification, Paragraph [0021]).

Independent claim 1 recites:

An apparatus comprising: an amplitude mapping circuit for converting at least a portion of an amplitude signal to a binary value; and, a plurality of amplifiers coupled to the amplitude mapping circuit, wherein the binary value is transmitted to at least one of the plurality of amplifiers to specify a gain level of the amplifier. [emphasis added].

Thus, claim 1 requires an "amplitude mapping circuit" which converts at least a portion of an "amplitude signal" into a "binary value." Claim 1 also requires that such "binary value" be transmitted to at least one of a plurality of amplifiers to specify a "gain level." Pehlke fails to disclose, teach or suggest such an invention.

Pehlke teaches a system for providing radiofrequency (RF) signal amplification. In one exemplary embodiment, the system comprises an amplifier circuit 10 including an amplitude modulation circuit 20 and a segmented power amplifier 12. The amplitude modulation circuit 20

receives a binary selection signal SEL and an amplitude information signal AM_{in} as inputs and utilizes those signals to control a series of power amplifiers 14A-14N in the segmented power amplifier 12.

Pehlke fails to disclose, teach or suggest a circuit which converts an “amplitude signal” into a “binary value.” The only binary value which is arguably disclosed by Pehlke is the selection signal SEL (emphasis added). Importantly, the selection signal SEL does not comprise an “amplitude signal” which has been converted to binary form. The origins of the selection signal SEL are not explained by Pehlke, and thus the Examiner cannot claim that Pehlke discloses, teaches or suggests a circuit which converts an “amplitude signal” into a “binary value” which is used to specify a “gain level” for an amplifier.

Accordingly, because Pehlke does not disclose, teach or suggest a circuit which converts an “amplitude signal” into a “binary value,” reconsideration and withdrawal of this ground of rejection with respect to independent claim 1, and claims 3 and 5 dependent thereon, is respectfully requested.

Independent claim 8 includes similar limitations to those discussed above with reference to independent claim 1, in particular the limitation of a binary value generated from a amplitude signal. For example, claim 8 recites:

A method for processing a signal, comprising the steps of:
separating the signal into amplitude and phase components;
generating a binary representation of at least a portion of the
amplitude component; and, specifying a gain level of one of a
plurality of amplifiers in response to the generated binary
representation. [emphasis added].

Thus, claim 8 requires a method wherein a signal is separated into “amplitude” and

“phase” components, and where a “binary representation” of the amplitude component is generated. As discussed above with reference to claim 1, Pehlke fails to disclose, teach or suggest conversion of a amplitude signal into a binary signal. Therefore, for at least those reasons discussed above with respect to claim 1, reconsideration and withdrawal of this rejection with respect to claim 8 is respectfully requested.

Pehlke also fails to disclose, teach or suggest separating a signal into “amplitude” and “phase” components, and “specifying a gain level” of an amplifier using the “binary representation” of the amplitude component. In fact, Pehlke nowhere discusses “phase” components of a signal, or using a “binary representation” of an “amplitude” component to control an amplifier. Therefore, for these additional reasons, reconsideration and withdrawal of this rejection with respect to claim 8 is also respectfully requested.

Claim Rejections Under 35 U.S.C. § 103

Claims 4, 6 and 7 stand rejected under 35 U.S.C. § 103(a) as being obvious over Pehlke taken alone. For the reasons set forth below, reconsideration and withdrawal of this ground of rejection is respectfully requested.

As discussed in detail above, Pehlke fails to disclose, teach or suggest a circuit which converts an “amplitude signal” into a “binary value,” as recited in independent claim 1 upon which claims 4, 6 and 7 depend. Hence, for at least those reasons highlighted above with reference to claim 1, reconsideration and withdrawal of this ground of rejection with respect to claims 4, 6 and 7 is respectfully requested.

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Conclusion

In view of the foregoing remarks, Applicants submit that this application is in condition for allowance at an early date, which action is earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Paul A. Taufer", written over a horizontal line.

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